

Right-angle Valves ISO-K/F

Bellows-sealed with
electropneumatic drive
from DN400 ISO-K to
DN1000 ISO-F.

Technical Information 178.10.02



Large Right-angle Valves

DN 400 ISO-K to DN 1000 ISO-F

The Oerlikon Leybold Vacuum Valve Line



As an expert in high vacuum technology, Oerlikon Leybold Vacuum has a long-term experience in the selection and implementation of vacuum blocking facilities and vacuum protection components.

These valves are well proven in widely differing areas of research and in industrial applications.

Bellows-sealed right-angle valves with an electro-pneumatic drive are available upon request in sizes ranging from DN 400 ISO-K to DN 1000 ISO-F.

Customer Benefits

- Low-vibration opening and closing
- High level of process reliability and low leak rate owing to the diaphragm seal
- Long service life of the valve drive
- Diaphragm bellows protected against deposits
- Sniffer bore for checking the leak tightness of the diaphragm bellows
- Integrated bypass flange as well as three measurement flanges
- Equipped as standard with pilot valve and non-contact electrical end position sensors
- Valve closes in case of an electric power failure or compressed air failure “normally closed”. Can be converted to “normally open” at the installation site

Technical Details

The Oerlikon Leybold Vacuum ISO-K valves DN 400 and DN 500 and ISO-F valves DN 630 to DN 1000 are right-angle valves with an electro-pneumatic drive.

The double-acting piston transfers the occurring forces and the performing movement via the piston rod to the valve disk.

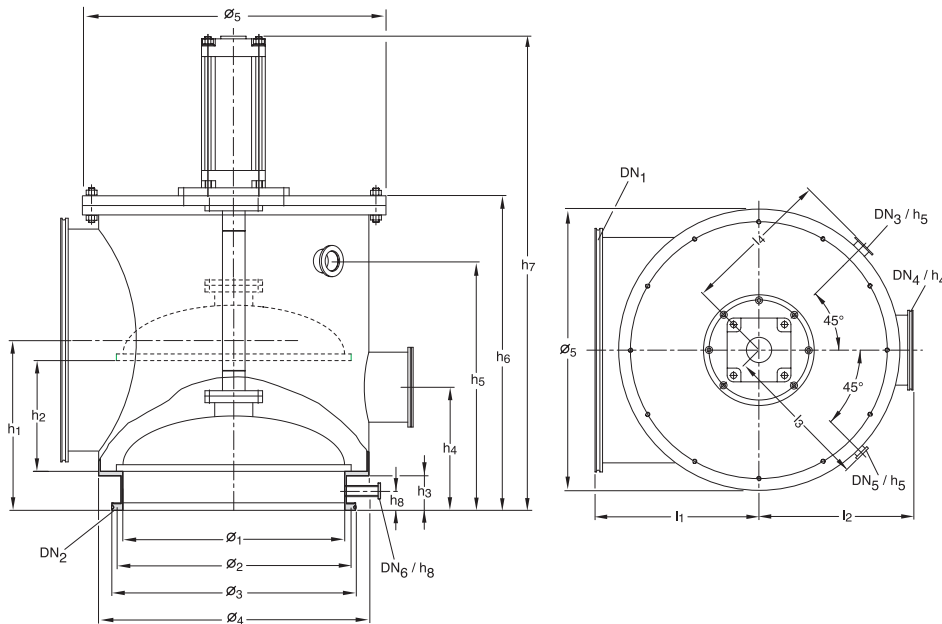
The pneumatic drive of the piston is controlled by means of a 5/2-way pilot valve.

These diaphragm sealed valves operate entirely hydrocarbon-free since the piston rod is sealed by the diaphragm bellows in the vacuum process direction. Thereby a complete seal against the atmosphere is provided. A groove attached at the pneumatic drive serves as a pressure equalizer within the atmospheric bellows chamber section, and on the other hand as a sniffer bore for helium leak testing.

Bolted joints at the valve disc and the housing DN ensure that the bellows and the entire inner section is easily accessible.

Depending on the vacuum pressure in the process, diaphragm bellows-sealed valves are suited for pressures $< 1 \cdot 10^{-7}$ mbar.

Valves for Industry and Research.



Dimensional drawing for the bellows sealed right-angle valves (in mm)

Nominal width	DN ₁ /DN ₂	400 ISO-K	500 ISO-K	630 ISO-F	800 ISO-F	1000 ISO-F
Bypass flange	DN ₄	63 ISO-K	160 ISO-K	160 ISO-K	250 ISO-K	250 ISO-K
Measurement flange 1	DN ₃	40 KF	40 KF	40 KF	40 KF	40 KF
Measurement flange 2	DN ₅	25 KF	25 KF	25 KF	25 KF	25 KF
Measurement flange 3	DN ₆	16 KF	16 KF	16 KF	16 KF	16 KF
h ₁	mm	315	383	480	570	660
h ₂	mm	160 approx.	250 approx.	320 approx.	350 approx.	420 approx.
h ₃	mm	70	78	85	92	86
h ₄	mm	220	278	360	365	450
h ₅	mm	370	485	610	705	830
h ₆	mm	590	710	914	1105	1284
h ₇	mm	902	1112	1408	1629	1878
h ₈	mm	45	49	52	56	57
dia ₁	mm	400	501	651	800	1000
dia ₂ *	mm	-	-	720*	890*	1090*
dia ₃	mm	450	550	750	920	1120
dia ₄	mm	490	610	770	875	1090
dia ₅	mm	560	--	865	970	1185
l ₁	mm	340	370	510	550	625
l ₂	mm	300	395	470	510	625
l ₃ / l ₄	mm	280	350	440	475	605
Weight	Kg	130	190	310	410	650

* Reference circle of the ISO-F hole pattern

Large Right-angle Valves

DN 400 ISO-K to DN 1000 ISO-F

for Industry and Research

Technical Data

Right-angle valves		DN 400 ISO-K	DN 500 ISO-K	DN 630 ISO-F	DN 800 ISO-F	DN 1000 ISO-F
Installation orientation		vertical / pneumatic cylinder facing upwards				
Conductance	l/s	9,000	12,000	20,000	30,000	50,000
Drive		pneumatic (opening and closing)				
Pressure difference when opening	mbar	max. 200				
Opening time ²⁾	s	5	5	6	8	8
Closing time ²⁾	s	5	5	6	8	8
Service life (actuations)		$> 1 \cdot 10^5$	$> 1 \cdot 10^5$	$> 1 \cdot 10^5$	$> 5 \cdot 10^4$	$> 5 \cdot 10^4$
Helium leak rate	mbar l/s	$< 1 \cdot 10^{-7}$				
Pressure range		$1 \cdot 10^{-6}$ mbar up to atmospheric pressure				
Maximum operating temperature	°C	60				
Connection flange ¹⁾		DN 400 ISO-K	DN 500 ISO-K	DN 630 ISO-F	DN 800 ISO-F	DN 1000 ISO-F
Bypass flange		DN 63 ISO-K	DN 160 ISO-K	DN 160 ISO-K	DN 250 ISO-K	DN 250 ISO-K
Further flanges		1 x DN 40 KF; 1 x DN 25 KF; DN 16 KF				

Materials

Housing and disk		stainless steel 1.4301				
Gaskets		Viton				
Diaphragm bellows		AM 350; AISI 633				

Pilot valve

Nominal voltage	V DC	24
Nominal power rating	W	4.5
Duty cycle	%	100

End position switch (max. contact rating)

Nominal voltage	V AC/DC	5 - 240
Current	mA	100
Power	W	10

Compressed air supply

Hose connection	mm	dia. 8
Pressure range	bar	5 - 7

¹⁾ depending on the type of flange, 12 clamping screws are needed for mounting (Part No. 267 10)

²⁾ under vacuum, differential pressure $\Delta p = 0$ and compressed air = 6 bar (overpressure)

Ordering Information

Right-angle valves	Part. No.	501 304	501 300	501 301	501 302	501 303
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